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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,672	06/25/2001	Stephen H. Brown	10024-2	9767

7590 02/14/2002  
ExxonMobil Chemical Company  
P.O. Box 2149  
Baytown, TX 77522

EXAMINER

NGUYEN, TAM M

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 02/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-4

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/891,672	BROWN ET AL.	
	Examiner	Art Unit	
	Tam M. Nguyen	1764	

-- Th MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claims 36-38 are objected to because claims 36-38 depend on canceled claim 1.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The expression "a negligible level" in line 3 of claims 21 and 31 does not affirmatively recite any level. Therefore, the scope of the claims cannot be ascertained.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21, 29-32, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Eng et al. (3,400,169).

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Eng discloses a process of removing bromine-reactive contaminants from an aromatic hydrocarbon stream comprising benzene by feeding the hydrocarbon stream into a diolefinic removing zone to remove substantially all of the diolefins from the hydrocarbon stream to produce a vapor stream which is contacted with an acid active catalyst in a hydrofiner zone to reduce the bromine number in the aromatic hydrocarbon feed. The hydrofiner is operated at a temperature of from 400 to 700<sup>0</sup> F, under a pressure of from 500 to 1000 psig, and at a feed rate from about 0.5 to 5 hr<sup>-1</sup>. (See entire patent)

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (3,400,169).

Regarding claim 22, Eng does not disclose that the feedstream has diene level below 50 ppm. However, Eng discloses that substantially all of the diolefins are removed from the feedstream before entering the bromine active contaminants removing zone. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Eng process by utilizing a feedstream containing less than 50 ppm of diene because Eng desires to use a feedstream that contains no dienes.

Regarding claim 23, Eng does not disclose that the aromatic hydrocarbon stream comprises C7+ reformat or light reformat. However, Eng discloses that the feedstream contains a high percentage of benzene and other aromatics. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Eng process by utilizing the claimed reforming feed because of the similarities between the claimed feed and the Eng feed. Therefore, it would be expected that the results would be the same or similar when using the claimed feed in the Eng process.

Claims 25-28, 36, 37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (3,400,169) in view of Degnan et al. (5,296,428).

The Eng process is as discussed above.

Regarding claims 25-28, Eng does not disclose the physical characteristics of the hydrofiner catalyst. However, Degnan discloses a catalyst comprising MCM-36 (which has physical characteristics as the claimed catalyst) and a hydrogenation/dehydrogenation component (see abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Eng process by utilizing Degnan's catalyst in the Eng hydrofiner zone because Degnan's catalyst is effective in a hydrogenation or dehydrogenation process.

Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (3,400,169) in view of Sugiyama et al. (4,089,798).

Eng does not disclose the claimed diene-removing catalyst. However, Sugiyama discloses a catalytic cracking process by using a catalyst comprising Ni, Mo, and alumina (see claims 7 and 10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Eng process by utilizing the Sugiyama catalyst because Eng discloses that a cracking catalyst can be used in the diene-removing zone. Therefore, one having ordinary skill in the art would use the Sugiyama catalyst in the Eng because the Sugiyama catalyst and the Eng catalyst have an equivalent function.

#### *Allowable Subject Matter*

Claims 38 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter: No prior art of record discloses or renders obvious a process for removing bromine-active contaminants from an aromatic hydrocarbon stream by contacting the stream with a catalyst which comprises MCM-22 under conditions sufficient to remove mono-olefins bromine-active contaminants from aromatic hydrocarbons as called for in claims 38 and 40.

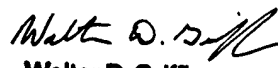
### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam M. Nguyen whose telephone number is (703) 305-7715. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode can be reached on 703 308 4311. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tam Nguyen/ TN  
February 11, 2002

  
Walter D. Griffin  
Primary Examiner